

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of Sections 90.20 and 90.175 of	)	WT Docket No. 02-285
the Commission's Rules for Frequency	)	RM-10077
Coordination of Public Safety Frequencies in	)	
the Private Land Mobile Radio Below-470	)	
MHz Band		

**Reply Comments of RadioSoft**

RadioSoft hereby respectfully submits its comments in reply to the Commission's *Notice of Proposed Rulemaking* (NPRM) in the above-referenced matter. RadioSoft provides radio engineering software that, among other things, analyzes spectrum allocation, service and interference, and additionally provides coordination services to many Part 90 Frequency Advisory Committees and their customers, including both American Association of State Highway Transportation Officials (AASHTO) and Forestry Conservation Communications Association (FCCA). We have an extensive business relationship with the Association of Public-Safety Communications Officials-International, Inc. (APCO), and as a Part 90 Database Service Provider a good working relationship with International Association of Fire Chiefs and International Municipal Signal Association (IMSA). The APCO Petition<sup>1</sup> has raised many ancillary issues (such as database management and interagency notification) which are a matter of our particular expertise and interest, and since we consult on a daily basis with Part 90 coordinators about all aspects of frequency coordination policy, engineering and processes we assert that we have standing to submit informed reply comments on all aspects of the above-captioned Docket (NPRM).

**Discussion**

The NPRM asks comment on the following questions, *inter alia*:

1. Should the frequency coordination process for Public Safety Pool frequencies below 512 MHz be modified by introducing competitive frequency coordination? Two options are suggested.
2. Are there significant differences between applications and licensing in the Public Safety Pool below 470 MHz and the frequencies formerly allocated to the Local Government Radio Service, the 700 MHz and 800 MHz public safety bands?
3. Would introducing competitive coordination complicate the coordination process, increase disputes between coordinators or delay implementation of public safety systems?

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<sup>1</sup> See Association of Public-Safety Communications Officials-International, Inc., Petition for Rulemaking, RM-10077 (filed Feb. 21, 2001) (Petition)

4. Are the four public safety coordinators proficient in the intricacies of the needs and plans of all public safety user groups?
5. Would retaining exclusive coordination allow coordinators to “warehouse” or otherwise reserve channels for particular categories of public safety users?
6. What measures would appropriately address spectrum warehousing concerns while not impairing the quality of frequency recommendations in the Public Safety Pool?
7. Would the concurrence process adopted by the Commission for the I/B Pool protect statewide VHF mobile systems or mobile-only or itinerant use channels, and what, if any, changes should be made to the contour analysis approach if we apply it to Public Safety Pool frequencies below 470 MHz?
8. Would an automated, common database of public safety plans help ensure that coordinators follow the relevant plans?
9. Coordinators routinely include all information on proposed systems. Would providing only additional information upon request be wise?
10. Could all public safety plans, taken together, serve as a common, albeit manual, database of plans that will be readily available for frequency coordination purposes?
11. Should any FCC frequency coordination rules<sup>2</sup> or frequency limitations<sup>3</sup> that govern Public Safety Pool frequencies below 512 MHz be retained, changed, or eliminated in connection with this proposal?
12. What other alternatives, if any, can be pursued to improve upon the frequency coordination procedures and process applicable to the Public Safety Pool?

We will comment on these questions in turn.

Should the frequency coordination process for Public Safety Pool frequencies below 512 MHz be modified by introducing competitive frequency coordination?

No. While certain frequencies, such as those in the 220 MHz or UHF pool assigned to Police, might be marginally better served by competitive coordination, differences in VHF usage of spectrum between the four agencies assumes mutual understanding not usually in evidence. Moreover, if competition is the goal, allowing the APCO (which now coordinates the overwhelming majority of Public Safety requests) access to all spectrum now restricted from it will cause the eventual demise of the three other Public Safety agencies’ coordination functions. For personal, practical and political reasons, there will likely never be a merger between APCO and any of the smaller three.

Are there significant differences between applications and licensing in the Public Safety Pool below 470 MHz and the frequencies formerly allocated to the Local Government Radio Service, the 700 MHz and 800 MHz public safety bands?

There are. The 700 MHz and NPSPAC 800 MHz bands were initially allocated based on sharing plans subscribed to by all four agencies, which reduced or eliminated most competitive coordination. All non-NPSPAC 800 MHz public safety channels have until recently been coordinated solely by APCO and weren’t used by the forestry conservation,

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<sup>2</sup> See, e.g., 47 C.F.R. § 90.175.

<sup>3</sup> 47 C.F.R. §§ 90.20(d)(1-83).

highway maintenance or fire agencies. The VHF spectrum in which APCO is primarily interested, by contrast, shows the effect of differing allocation, sharing and protection policy over time, according to the interest of the particular agency. The analogy comparing 800 MHz and 150-170 MHz spectrum sharing is specious.

Would introducing competitive coordination complicate the coordination process, increase disputes between coordinators or delay implementation of public safety systems?

Probably. Complication could come due to having to train on multiple allotment plans, and in having differing assignment “culture”. Disputes would probably decrease long term, as APCO would become practically the only coordination agency, marginalizing the other three. The effect of increasing APCO’s share of coordination on delay of implementation is not easy to quantify. While APCO is not the fastest coordination agency<sup>4</sup>, and thus elimination of the other three would slow service somewhat, the delays in interservice sharing would be eliminated, along with the concomitant fees. We note later that other measures to improve coordination speed while retaining diverging views of protection requirements are needed.

Are the four public safety coordinators proficient in the intricacies of the needs and plans of all public safety user groups?

No. We examined all twelve relationships in the matrix, and find that no agency readily understands the typical exigencies of any other, as proven by the rejections rates. There is some overlap between APCO and IMSA, perhaps, but burdening APCO’s large (and incomparable) staff with Low Band simplex Volunteer Fire Departments would be far less efficient than sending them all to IMSA. IMSA’s staff, while smaller, is quite expert at its primary mission. APCO alone has truly solved the problem of maintaining a large geographically diverse volunteer staff with frequent regional and national training and APCO-provided hardware. But this very successful diversity argues against training all in unique processes better handled by a few.

Would retaining exclusive coordination allow coordinators to “warehouse” or otherwise reserve channels for particular categories of public safety users?

There appear to us several ways to understand “warehousing”. If by exclusivity it is meant that, for example, forestry conservation spectrum could be reserved in areas with few or no forests, it is precisely this case for which Intercategory Sharing is in place. We have observed, however, cases of applications (and subsequent licenses) intended to protect general spectrum rather than to utilize it, and we argue that this practice could increase if Public Safety coordinators were made users of all frequencies but masters of none. We suspect that a typical case, that of a wideband licensee applying for narrowband adjacents to protect its wideband hardware, would less likely be found among the spectrum coordinated by the smaller agencies. If by contrast warehousing is meant to mean that FCCA (for example) typically refuses requests for intercategory sharing, we do not find this supported by the record. Indeed, this is so much the case that the objections currently raised in intercategory sharing would by approval of the APCO petition universally be referred to the Commission for arbitration. Since the vast majority

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<sup>4</sup> APCO has currently no backlog of applications for the first time in years, but this may be in part due to reduced workload.

of arbitration requests of intercategory sharing are currently adjudicated in favor of the existing (protected incumbent) licensee, this change would be a burden both on the smaller coordination agencies and the Commission.

What measures would appropriately address spectrum warehousing concerns while not impairing the quality of frequency recommendations in the Public Safety Pool?

These measures are already in progress or in place for intercategory sharing. The four agencies have all agreed to a minor extension (“Z1”) to the FCC EBF format<sup>5</sup> which will allow nearly automatic intercategory sharing notification, though it is left to the individual agency how much to avail itself of this opportunity. APCO had agreed to begin circulating these data first March 1, 2002 and again thereafter on November 1, 2002, but has not yet done so. This protocol will eliminate most delays in intercategory sharing by providing addressee-specific electronic transfer of proposed spectrum allocations, and therewith the ability to electronically manage these data within each coordination agency. We argue that no change to the pools should be decided until the Z1 exchange protocol has been in place at all four agencies for at least six months. The delays and errors inherent in the present “transfer-by-fax-and-rekey” system do not accurately represent the efficient conditions that so many commenting parties seek. As to other than intercategory warehousing concerns, the laudable FCC audit, insofar as it is accurately reported, should illuminate the problem nicely.

Would the concurrence process adopted by the Commission for the I/B Pool protect statewide VHF mobile systems or mobile-only or itinerant use channels, and what, if any, changes should be made to the contour analysis approach if we apply it to Public Safety Pool frequencies below 470 MHz?

The concurrence process of the 5<sup>th</sup> MO&O uses HAAT-based F(50,50) and F(50,10) contours to trigger notification. To our knowledge, less than ten of these triggers have occurred.<sup>6</sup> Contours cannot well describe area or itinerant uses, and attempts to create a contour for those uses would be difficult and would inevitably consume spectrum unnecessarily. Moreover, as we have argued on behalf of TIA in the past, the F(50,10) contours have no scientific basis for land mobile use and should be immediately retired. We note that LMCC has agreed to re-examine its adjacent channel contour-based derating scheme for precisely this reason. There are three general approaches to coordination: by distance, by contour and by terrain-based analysis, listed in increasing order of spectrum efficiency. In mature spectrum, mere distance is useless. Contours based on average terrain are at best approximate, as several commenters have averred. The problem of interpretation of terrain-based interference analysis seems to us precisely the justification for coordination agencies: where and how much interference is possible without compromising existing uses is and must remain a judgment best made by an experienced professional. Contours might be used (as they now are) to trigger notification, but differing ideas on which co- and adjacent channel contours should be used must be based on algorithms derived from scientifically measured data, rather than on the least common denominated opinion.

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<sup>5</sup> See Attachment: Public Safety Frequency Advisory Committee FCC Form 601 Data Exchange

<sup>6</sup> Bob Vandenberg, of AAR, tells us, “They still call me on the phone.”

Would an automated, common database of public safety plans help ensure that coordinators follow the relevant plans?

Certainly. However, such a database would not be trivial to develop, administer and keep current. The process of establishing a similar database for the 700 MHz spectrum took years, was for virgin spectrum, and has fallen permanently short of many of its design requirements. Developing one for 150 MHz post facto, if it were at all efficient, would require massive re-planning of existing licensees, with the added complications inherent in non-paired assignments.

Coordinators routinely include all information on proposed systems. Would providing only additional information upon request be wise?

Absolutely not. Take as an example the ULS EBF requirement that only changed information be supplied with modified applications: the unacceptable result is that until the modification is joined with its parent license, it may have no location information which will permit it to be searched and protected. Reconciliation of Granted and Pending data is far from trivial, since identifiers within the data are not correlated. If the desired goal in requiring daily communication between coordination agencies is protection of applied-for-but-not-licensed spectrum, why open such a glaring hole for all modifications in Notification or Pending status? The modified information is already flagged as such, line-by-line and any database application can filter it as necessary for billing or other purpose.

Could all public safety plans, taken together, serve as a common, albeit manual, database of plans that will be readily available for frequency coordination purposes?

With certain stylistic commonality, it could so serve. But as above, which agency will define and enforce conformity? This would be no small task. The 700 KHz NIJ-funded database is necessarily limited in its scope so as not to infringe on private enterprise: where would the line be drawn here?

Should any FCC frequency coordination rules or frequency limitations that govern Public Safety Pool frequencies below 512 MHz be retained, changed, or eliminated in connection with this proposal?

Since we do not believe that adopting either of the two alternative changes proposed would serve the public interest, the answers are conditioned on the adoption of one of them. The four Public Safety coordination agencies have agreed to notify one another 5 business days before filing with FCC in order to allow objections and withdrawals of potentially harmful allocations. We believe this to be a valuable agreement, except (as above) that the "Z1" protocol allowing efficient electronic processing of notification data is not fully implemented. Note that not only intercategory sharing (for which Z1 was originally conceived) is at issue, but also exchange of such data as PL and DPL tones, receive frequencies and waiver exhibits which may be crucial to understanding what it proposed and what its interference may be. Regardless of the eventual disposition of the exclusive frequencies, we would ask that a date be set by which all such data must be able to be sent, received and confirmed by all agencies.

What other alternatives, if any, can be pursued to improve upon the frequency coordination procedures and process applicable to the Public Safety Pool?

- A) Require all information excepting exhibits (when previously on file) to be transmitted when any part of an application is transmitted.
- B) Grant no more licenses for wideband operation, and sunset allowed wideband radio manufacturing.
- C) Adopt TIA TSB-88A, with subsequent amendments, for interference analysis.
- D) Attach to each record corner coordinates or point-and-radius for all area operations. Publish these data.
- E) Attach to each record employing a directional antenna Make, Model, and beam tilt as well as azimuth. Publish these data.
- F) Attach to each record proposed modulation type or types. Publish these data.
- G) Permit attachment to each appropriate record PL (or DPL) tone data. Publish these data.
- H) Permit attachment to each appropriate record receive frequency data. Publish these data.
- I) Consider mobile interference.
- J) Renegotiate PLMR treaties with Canada, including automated verifiable spectrum searching.

We realize that these suggestions were not likely to have been envisioned as part of this inquiry. Nevertheless, the question is sufficiently general as to solicit them. We will discuss each in turn.

A) Require all information excepting exhibits (when previously on file) to be transmitted when any part of an application is transmitted.

We raised this question personally at ULS sessions, and were told that the “send only what’s changed” decision was imposed by the fee structure, i.e., that the Commission wished to avoid the risk of charging for previously licensed unmodified facilities, or perhaps the task of segregating the data. As we pointed out above, this is poor database style, since reconciliation of data is always more error-prone than simply filtering for changes, *especially when these changes are already labeled in the data!* This has resulted in three problems:

1. The Commission has shifted the software burden from itself (where it would be comparatively simple, as it is already being done when granting) to the database providers, where it is nasty and can never be fully automated.
2. The problems in protecting notified or pending modified applications require on-the-fly reconciliation. This is not done, and therefore this spectrum is not protected, which causes heartburn for all parties involved. When considered in the light of consecutive modifications (which are allowed), reconciliation is nearly impossible. Even if it were to be done, it would be unacceptably error-prone, or would require manual processing of each modification application, which is precisely what ULS is supposed to avoid. Moreover, geographic searches by the public on the spanking new ULS search engine will not contain these applications. This contaminates the ability of the public, private licensing and engineering firms to select frequencies. As coordination processes in the

marketplace mature, the probability of selecting the same frequency in any precluded area increases.

3. It increases time of processing.
4. It has introduced unacceptable complexity and misunderstanding into the ULS EBF user interface. Do not underestimate the importance of an intuitive interface!

#### B) Grant no more licenses for wideband operation.

Considerations of depreciation and manufacturing aside, this decision would have far sharper teeth than the too-seldom understood “Well, they won’t be protected as wideband systems”. It is not always obvious to whom, and to what extent, wideband and narrowband adjacents will cause and receive interference. Ending wideband licensing, coupled with a spot check policy, will undercut the draconian adjacent channel protection requirements insisted upon by some LMCC members. In order to achieve consensus, the derating factors adopted were the most conservative proposed, and did not properly consider the differences between VHF wide- and narrowband use nor co-channel and first (7.5 kHz) adjacent users. Moreover, 12.5 or 15 kHz de-rated F(50,10) HAAT-based contours become so small if actual observed protection ratios are used that 50,10 becomes meaningless as the contours never reach 16 km. where the 50,10 curves stop. We note that in §90.20 only 13 Public Safety Frequencies are subject to limitation #83 which sunsets wideband use. As with DTV, the price of narrowband hardware will not drop until wideband may no longer be profitably sold.

#### C) Adopt TIA TSB-88A for interference analysis.

There are several points necessitating this.

1. Public Safety, like Critical Infrastructure Industries (“CII”), requires better standards of protection than averaging terrain provides.
2. Contours are inadequate. We participated in TIA TR8.18; the undersigned was the Task Force Chair for Contour and HAAT standardization. My group tried for two years to arrive at a mathematical methodology for creating a contour from a tiled matrix of field strengths that would satisfy most typical transmitter sites. Despite the efforts of several highly qualified experts, we were unable to do so. HAAT-based contours were developed for one-way Broadcast use, where the divergence from real-world propagation is somewhat more tolerable. In Public Safety Land Mobile two-way use, however, they are so inaccurate that they have had to be excessively restrictive in order to adequately protect a given service area, and they are useless for mobile service and interference analysis.
3. There is no other proven method for distinguishing between modulation types. For example, DVP modulation is in most cases more damaging to adjacent channel operation than wideband analog, yet there are extremely narrow band analog and digital modulation types that require no adjacent channel protection of the downlink path at all.
4. Protection of the uplink path cannot be analyzed with terrain averaging. The famous case used to justify public safety protected service areas (“Officer down!”) requires a successful uplink path. Officially avoiding consideration of this path simply because no good tool is available is no longer possible, though a

better method than Longley-Rice 1.2.2 must be used—again, Anita Longley and Phil Rice did not consider the return paths, only downlink Broadcast.

D) Attach to each record corner coordinates or point-and-radius for all area operations, and publish these data.

Whether or not this proposal is to move forward, defining these areas is unavoidable. We have several times raised this at meetings with FCC. This would solve the problem of a spectrum search in, say, Erie, PA finding statewide licenses in New York or Ohio. Though the solution of defining a protected rectangle (which, for California, would include all of Nevada) is at times too large, it is far preferable to some failure-prone external logic for attaching statewide licenses to spectrum search output. Once alerted to the presence of a wide area system, coordinators can easily determine how much protection is necessary—it is necessary for these records to appear in searches for the coordinator's discretion to be applicable. Note that for mobile-only systems, a tile-based analysis like TSB-88A must be used.

E) Attach to each record employing a directional antenna Make, Model, and beam tilt as well as azimuth, and publish these data.

Public Safety coordinations in crowded areas increasingly employ beam-tilted directional antenna radiation to maximize spectrum efficiency. While these requirements may be attached as a condition of the Granted License, they are not published with the station records, making modifications by incumbents difficult or impossible to correctly analyze. This happens even in rural areas—Alabama Forestry, for example, protects the Florida panhandle as a courtesy with directional patterns aimed inland, but no coordinator searching for Florida spectrum would be aware of this protection unless he/she happened to have personal knowledge of the systems involved. Correcting this would provide general spectrum efficiencies of up to 35%.

F) Attach to each record proposed modulation type or types, and publish these data.

We understand the history of emission designators, and much of the legal framework both domestic and international that has grown around them. However, they are inadequate in a digital world to accurately predict interference. We would be willing upon request to show cases whose emission is indistinguishable where adopting a worst-case protection requirement for a digital system's protection would reserve more than five times the area needed. We understand the reluctance at the coordination level to include data that is normally part of post-coordination engineering; but how, with spectrum shortages, can we answer requests of Public Safety applicants whose only option may be a less demanding modulation type with an otherwise inadmissible emission?

G) Add to each appropriate record CTCSS (or DPL) tone data and publish these data.

Though PL and DPL tone data are not technically a regulatory necessity, they are collected by most of the Part 90 Frequency Advisory Committees in a varied "Supplemental Form". Unfortunately, since EBF does not contain these fields, the data is not exchanged by coordinators, nor is it submitted to FCC or published by them. As a result, though the data is available and useful, it is ignored.



H) Add to each appropriate record receive frequency data and publish these data.  
As in G) above, this data is collected but lies unused since it is not part of EBF or ULS. In VHF, particularly, where paired spectrum is mostly random, this would be an invaluable addition.

I) Consider mobile interference.

A majority of interference caused by otherwise adequate coordination efforts is received across the uplink path from the mobile to the base station receiver. Avoiding analysis of this path permitted the disastrous Tx-Rx frequency swap in Tennessee and other places, since absent consideration of the return path, the frequencies “seemed” cleaner that way. As NPSPAC learned from prior 800 MHz efforts in allocating 821 – 824 MHz spectrum, it based its allocation plan on 40 dBμ F(50,50) service contours and 5(!) dBμ F(50,50) interfering contours. Though it is far preferable (for many reasons, among which reciprocal analysis is chief) to use F(50,50) for interference analysis, creating such large contours still retains the defect of wasting spectrum, up to 45% in hilly areas. Mobile interference from adjacent T-Band (470 – 512 MHz) proposals should be subject to language similar to that in §90.612(b)(4) requiring terrain-based mobile-to-mobile interference analysis with distance separations of less than 32 (or more) km. While we support the use of TSB-88A analysis generally, we are concerned that percentage-based criteria alone may lead to assignment of transmitters within existing service areas (or the reverse), with the result that a mobile parking near an adjacent receiver would cause 100% interference, which is undesirable. Criteria for rejecting this type of mobile-to-mobile interference should be developed and enforced in a Rule.

J) Renegotiate PLMR treaties with Canada, including automated verifiable spectrum searching.

Ron Haraseth, Head of Frequency Coordination at APCO (along with other individuals) has made several admirable efforts at “pre-coordination” with Canada, largely to avoid the intolerable processing latency of which the Commission is very well aware. Thus to sidestep formal procedures, however, is arguably an abdication of one of the Commission’s primary responsibilities, so even if successful it is an open sore in need of healing. There are two major problems: the non-reciprocity of the technical requirements of protection, and the much larger percentage of Canadian records shielded from public access.

We were not privy to the negotiations that led to the adoption of the current treaty, but even considering the higher population density over the Canadian border, it is insufferably onerous, with its requirement (at VHF) of –146 dBm against ours of –109 dBm. For the less technical reader, this 37 dB difference corresponds (all other heights, distances &c being equal) to an Effective Radiated Power of 50,000 watts allowed in Canada as against only one watt here! With Public Safety’s (and our Military’s) renewed demands for Homeland Security spectrum, *this must be immediately remedied*. We had brought this up in several FCC meetings, and inaction has now put the United States of America in a dangerous position.

Canada keeps its Police frequencies, along with military ones, secret. Though with lists of these available at any Radio Shack®, coupled with digital encryption, it seems hard to justify maintaining this secrecy in the face of additional coordination complexity, we do not ask for this Canadian declassification. Rather, a general area-based description could eliminate a frequency from consideration without yielding any details that might alarm a military mind. This could easily be done with the “corner coordinate” method proposed above. This would avoid constantly proposing the same unavailable frequency in a Canadian Concurrence process that is already glacially slow. Note that should the APCO proposal be granted, this problem would be exacerbated.

We also note that though we have never been in the position of searching for spectrum for use in Canada, a similar situation might exist there. For example, the site details of the 162.4 – 162.55 MHz use by the US National Weather Service could (and should) be published, and that this has obvious resonance with Public Safety (weather emergencies) as well as Canada.

### **Conclusion**

It is clear to us that in the long term, throwing all Public Safety VHF frequencies into a common pool available to APCO would be anti-competitive. Though it is true that half of these are now exclusively APCO’s to coordinate, the loyalty of APCO’s Police membership is such that it is unlikely any member would choose another coordinator, even if *arguendo* a lower cost were offered. This situation has arisen partly from the disparate size of the various memberships, partly from institutional differences between the organizations and partly from activity levels of classes of users. Costs of Governmental operations, especially when the vast majority of Public Safety coordinators are volunteers, are notoriously difficult to quantify. Placing market pressures on these processes, or on the Frequency Advisory Committees, might have undesirable consequences, even to APCO, much of whose venerable local advisor stable is due for retirement, and for which the flow of applications has slowed in recent months. It is somewhat disingenuous of APCO to imply that it will well serve the needs of the other three constituencies, when discounting the effect of new spectrum for its own far larger user base.

If the Commission unalterably fixes access parity as a goal, we suggest beginning with the 220 and 450 – 470 MHz frequencies as a test. We predict in this case that few (if any) of these will be coordinated by any agency other than APCO, no matter the duration of the test. This would go far to prove or disprove the cultural differences asserted by the smaller agencies. Once the door is opened at VHF, reconsideration such as was necessary for the Critical Infrastructure Industries (“CII”) would be difficult.

The progress of technology persuades us that the radio requirements of the four representative constituencies will diverge, and moreover that this divergence will accelerate, interoperability notwithstanding. We believe it is critical to preserve the representational diversity of demand for Public Safety spectrum by preserving Rules preventing monopolistic practices. One has only to compare the annual Conferences

given by the organizations to understand that none of the smaller three could withstand any possible predatory pricing practices in a competitive environment.

In our view, industrial uses of spectrum under Part 90 tend to be sufficiently similar that competitive coordination has been successfully introduced. Even there, however, the Commission recognized the unique needs of CII providers and chose an appropriate compromise of allowing coordinators in those services a “first right of refusal” to use of the channels. The true public safety uses need to be protected to an even greater level, since they are less financially flexible than for-profit CII users. Each of the current coordinators is uniquely familiar with the needs of its first-responders and is in the best position to quickly and effectively coordinate use of its frequencies. Public safety services are not profit-driven, so coordination of public safety frequencies should not be thrown to the whims of the marketplace.

Should staff time be available for improvements, we have suggested several far better opportunities for improving Public Safety spectrum licensing and usage. Whatever the interagency problems which may have led to the “remedy” proposed, there must be a way to jointly solve them—perhaps the threat of PCIA and ITA entering Public Safety coordination will provide the necessary impetus.

/s

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